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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/781,795

Applicant(s)

ARAI ET AL.

Examiner

Colleen A. Matthews

Art Unit

2811

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-14, 24-27, 63-84 and 89-113 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-14, 24-27, 63-84 and 89-113 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 01/05/2010
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12-14, 24-27, 63-84, 89-113 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 12 recites the limitation "the same layer" in line 12. There is insufficient antecedent basis for this limitation in the claim.

Claim 24 recites the limitation "the same layer" in line 12. There is insufficient antecedent basis for this limitation in the claim.

Claim 63 recites the limitation "the same layer" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 67 recites the limitation "the same layer" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 71 recites the limitation "the same layer" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 75 recites the limitation "the same layer" in line 7. There is insufficient antecedent basis for this limitation in the claim.

Claim 79 recites the limitation "the same layer" in line 6. There is insufficient antecedent basis for this limitation in the claim.

Claim 103 recites the limitation "the same layer" in line 12. There is insufficient antecedent basis for this limitation in the claim.

Claim 108 recites the limitation "the same layer" in line 12. There is insufficient antecedent basis for this limitation in the claim.

Claim 63 recites the limitation "the impurity region" in line 7. It is unclear which impurity region is intended to be "the impurity region" as multiple transistors "each including an impurity region" is recited in line 4.

Claim 67 recites the limitation "the impurity region" in line 8. It is unclear which impurity region is intended to be "the impurity region" as multiple transistors "each including an impurity region" is recited in lines 4-5.

Claim 71 recites the limitation "the impurity region" in line 7. It is unclear which impurity region is intended to be "the impurity region" as multiple transistors "each including an impurity region" is recited in line 4.

Claim 75 recites the limitation "the impurity region" in line 8. It is unclear which impurity region is intended to be "the impurity region" as multiple transistors "each including an impurity region" is recited in lines 4-5.

Claim 79 recites the limitation "the impurity region" in line 7. It is unclear which impurity region is intended to be "the impurity region" as multiple transistors "each including an impurity region" is recited in line 4.

Re claims 25-27, and 109-112: the claims recite the limitation of "a label" or "a first label and a second label." As noted by applicant the claimed limitation of "a substrate" in Claim 24 and Claim 108 corresponds to a label, thus it is unclear which "label" is being claimed in claims 25-27 and 109-112

The substrate (10) shown in Figs 1A-1E is a temporary substrate that is removed in manufacturing and thus corresponds to an intermediate structure. The claimed final product, shown in Figures 4A-4C, no longer includes such a substrate; rather it includes a first label (40) and a second label (50). The first label (40) may be considered as a substrate (See Remarks filed 01/05/2010 Page 12-13). However then it is unclear if Applicant is claiming the same element twice with different names (substrate and label; or substrate and first label).

. The Examiner interprets the claimed language based on applicant's disclosure and remarks, and therefore, for the instant action is interpreting that the substrate is considered as corresponding to the first label (40) and the additional claim language of "label" and "first label" is referring to the corresponding same element, first label (40).

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the

applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

As far as the claims can be understood, **Claims 63-66, 79-83, 98 and 102 are rejected under 35 U.S.C. 102(a/e)** as being anticipated by U.S. Pat. No. 6,509,217 to Reddy.

Re claims 63 and 79: Reddy discloses a flexible integrated circuit capable of performing data transmission wirelessly, (Fig 1, for example) comprising:

an integrated circuit (col 7 lines 50-60) including a memory disposed over a substrate (10), the integrated circuit comprising thin film transistors (S/G/D, single transistor shown, multiple disclosed, see col 7 lines 50-60) each including an impurity region ("S", for example);

an interlayer insulating film (44) over the thin film transistors; and

an antenna (68/70) provided on the interlayer insulating film and in the same layer (both are within layer 60) as a wiring (62, for example and/or 58) connected to the impurity region (connected to impurity region "S" through contact 52), wherein the substrate has a flexibility (plastic, col 8 line 1).

Re claims 64 and 80: Reddy discloses the flexible integrated circuit according to claims 63 and 79 wherein the substrate is a plastic substrate (plastic, col 8 line 1).

Re claims 65 and 81: Reddy discloses the flexible integrated circuit according to claims 63 and 79 wherein each of the thin film transistors includes a semiconductor film comprising silicon.

Re claims 66 and 82: Reddy discloses the flexible integrated circuit according to claims 63 and 79 further comprising an antenna wherein the antenna is electrically connected to the integrated circuit (col 16 lines 9-28).

Re claim 83: Reddy discloses the flexible integrated circuit according to claim 79 wherein the memory is a rewritable memory (col 1 lines 15-20)

Re claims 98 and 102: Reddy discloses the flexible integrated circuit according to claims 63 and 79, wherein the antenna (68/70) is formed in a depressed portion formed in the interlayer insulating film (44/60).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

As far as the claims can be understood, **Claims 13-14, 24-25, 27, 67-70, 89-90, 92, 96-97, 99, 103-109, 111-113 are rejected under 35 U.S.C. 103(a)** as being unpatentable over U.S. Pub. No. 2003/0032210 to Takayama in view of U.S. Pat. No. 6,509,217 to Reddy.

Regarding claims 12, 24, 67, 103 and 108, Takayama discloses a flexible integrated circuit capable of performing data transmission wirelessly (preamble not given patentable weight) comprising:

a substrate (412, paragraph [0247] and [0248]),
an adhesive (411) over the flexible substrate;
a metal oxide (402; paragraph [0190] lines 1-3, paragraph [0242] lines 17-18, paragraph [0246] line 4) over the adhesive;
an insulating film (403; paragraph [0191] lines 1, paragraph [0242] lines 19-20) over the metal oxide,
a transistor comprising a semiconductor film (104-108 in Figure 6A), a gate insulating film (118 in Figure 6B) and a gate electrode (Figure 6C elements 126-130) which provided over the insulating film;
an interlayer insulating film over the transistor (156, paragraph [0228] see Fig 8);
a wiring (157-164, paragraph [0228], see Fig 8) formed on the interlayer insulating film, wherein the wiring is connected to an impurity region in the semiconductor film (157 is connected to impurity region 140, for example); and
Takayama also discloses use of the circuit with an antenna (2906 in Figure 19A and 3006 in Figure 19B).

Takayama fails to explicitly disclose the antenna formed on the interlayer insulating film.

Reddy discloses a flexible integrated circuit capable of performing data transmission wirelessly, (Fig 1, for example) comprising:

a substrate (10),
an insulating film (12B),

a transistor (S/G/D, single transistor shown, multiple disclosed, see col 7 lines 50-60) on the insulating film;

an interlayer insulating film (44) over the transistor;

a wiring (62, for example and/or 58) connected (through contact 52, for example) to an impurity region ("S", for example), and

an antenna (68/70) provided on the interlayer insulating film and in the same layer (both are within layer 60) as the wiring (62 and/or 58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama to include the antenna formed on the interlayer insulating film as taught by Reddy in order to provide wireless transmission.

Re claims 25 and 109: Takayama as modified discloses the container as above wherein the flexible integrated circuit is covered by a label (407).

Re claims 27 and 111: Takayama as modified discloses the container as above where the flexible integrated circuit held between a first label (412) and a second label (407) and the first label is affixed to the thin film integrated circuit with an adhesive (409).

Re claims 13 and 104: Takayama as modified discloses the flexible integrated circuit as above. The modification of Reddy further teaches wherein the antenna comprises a same material as the wiring (col 16 lines 9-40)

Re claims 14 and 105: Takayama as modified discloses the flexible integrated circuit as above. The modification of Reddy further teaches wherein the antenna comprises a conductive paste (col 16 liens 50-55).

Re claim 68: Takayama as modified discloses the flexible integrated circuit according to claim 67 wherein the substrate is a plastic substrate (412, paragraph[0247] and [0248]).

Re claim 69: Takayama as modified discloses the flexible integrated circuit according to claim 67 wherein each of the thin film transistors includes a semiconductor film comprising silicon.

Re claim 70: Takayama as modified discloses the flexible integrated circuit according to claim 67. The modification of Reddy further teaches comprising an antenna wherein the antenna is electrically connected to the integrated circuit (col 16 lines 9-28).

Re claims 89, 90, 92, 106 and 112: Takayama as modified discloses the flexible integrated circuit as above wherein the interlayer insulating film comprises an organic material (paragraph [0228]).

Re claims 96, 97, 99, 107 and 113: Takayama as modified discloses the flexible integrated circuit as above. The modification of Reddy further teaches wherein the antenna (68/70) is formed in a depressed portion formed in the interlayer insulating film (44/60).

As far as the claims can be understood, **Claims 84, 91 and 95 are rejected under 35 U.S.C. 103(a)** as being unpatentable over U.S. Pat. No. 6,509,217 to Reddy in view of U.S. Pub. No. 2003/0032210 to Takayama.

Re claim 84: Reddy discloses the flexible integrated circuit according to claim and 79. Reddy fails to disclose wherein the integrated circuit is attached to the substrate

with an adhesive interposed therebetween. Takayama teaches an integrated circuit is attached to the substrate (412) with an adhesive (411) interposed therebetween. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reddy to include the adhesive as taught by Takayama in order to secure the integrated circuit to the substrate.

Re claims 91 and 95: Reddy discloses the flexible integrated circuit according to claims 63 and 79. Reddy fails to disclose wherein the interlayer insulating film comprises an organic material. Takayama teaches an interlayer insulating film comprising an organic material (paragraph [0228]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reddy to include the organic material as taught by Takayama in order to provide device insulation between wiring connections.

As far as the claims can be understood, **Claims 26, 75-78, 94, 101 and 110 are rejected under 35 U.S.C. 103(a)** as being unpatentable over U.S. Pub. No. 2003/0032210 to Takayama in view of U.S. Pat. No. 6,509,217 to Reddy and U.S. Pub. No. 2002/0027247 to Arai et al (Arai).

Re Claims 26 and 110: Takayama discloses a container according as above. Takayama fails to disclose a protective film having DLC film or a CN film is provided between the flexible integrated circuit and the label. Arai et al. teaches a protective film of DLC (Figure 10B element 704) provided on a thin film integrated circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made use the protective DLC film of Arao et al. as the protection layer in Takayama in order to prevent the invasion of oxygen as well as water and also to mechanically protect the thin film integrated circuit.

Re Claim 75: Takayama discloses a flexible integrated circuit capable of performing data transmission wirelessly comprising:

an integrated circuit attached to a substrate (412, paragraph[0247] and [0248]), with an adhesive (411) interposed therebetween, the integrated circuit comprising thin film transistors;

an interlayer insulating film over the transistor (156, paragraph [0228] see Fig 8); and

Takayama also discloses use of the circuit with an antenna (2906 in Figure 19A and 3006 in Figure 19B).

Takayama fails to explicitly disclose the antenna formed on the interlayer insulating film or a protective film covering the antenna.

Reddy discloses a flexible integrated circuit capable of performing data transmission wirelessly, (Fig 1, for example) comprising: a substrate (10),

an insulating film (12B),

a transistor (S/G/D, single transistor shown, multiple disclosed, see col 7 lines 50-60) on the insulating film;

an interlayer insulating film (44) over the transistor;

a wiring (62, for example and/or 58) connected (through contact 52, for example) to an impurity region ("S", for example), and

an antenna (68) provided on the interlayer insulating film and in the same layer (both are within layer 60) as the wiring (62 and/or 58).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Takayama to include the antenna formed on the interlayer insulating film as taught by Reddy in order to provide wireless transmission.

Arao et al. teaches a protective film of DLC (Figure 10B element 704) provided on a thin film integrate circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made use the protective DLC film of Arao et al. as the protection layer in Reddy in order to prevent the invasion of oxygen as well as water and also to mechanically protect the thin film integrated circuit.

Re claim 76: Takayama discloses the flexible integrated circuit according to claim 75 wherein the substrate is a plastic substrate (412, paragraph[0247] and [0248]).

Re claim 77: Takayama discloses the flexible integrated circuit according to claim 75 wherein each of the thin film transistors includes a semiconductor film comprising silicon.

Re claim 78: Takayama discloses the flexible integrated circuit according to claim 75. The modification of Reddy further teaches a wiring (62/52 and 64/54) electrically connected to the integrated circuit (col 16 lines 9-28) wherein the wiring and the antenna are formed on a same surface

Re claim 94: Takayama as modified discloses the flexible integrated circuit as above wherein the interlayer insulating film comprises an organic material (paragraph [0228]).

Re claim 101: Takayama as modified discloses the flexible integrated circuit as above. The modification of Reddy further teaches wherein the antenna (68/70) is formed in a depressed portion formed in the interlayer insulating film (44/60).

As far as the claims can be understood, **Claims 71-74 and 100 are rejected under 35 U.S.C. 103(a)** as being unpatentable over U.S. Pat. No. 6,509,217 to Reddy in view of U.S. Pub. No. 2002/0027247 to Arao et al (Arao).

Regarding claim 71, Reddy discloses a flexible integrated circuit capable of performing data transmission wirelessly, (Fig 1, for example) comprising:

- an integrated circuit (col 7 lines 50-60 disposed over a substrate (10),
- the integrated circuit comprising thin film transistors (S/G/D, single transistor shown, multiple disclosed, see col 7 lines 50-60) each including an impurity region ("S" for example)

- an interlayer insulating film (44) over the thin film transistors; and
- an antenna (68/70) provided on the interlayer insulating film and in the same layer (both are within layer 60) as a wiring (62, for example, and or 58), wherein the substrate has a flexibility (plastic, col 8 line 1).

Reddy fails to disclose a protective film covering the antenna. Arao et al. teaches a protective film of DLC (Figure 10B element 704) provided on a thin film integrated circuit.

It would have been obvious to one of ordinary skill in the art at the time the invention was made use the protective DLC film of Arao et al. as the protection layer in Reddy in order to prevent the invasion of oxygen as well as water and also to mechanically protect the thin film integrated circuit.

Re claim 72: Reddy discloses the flexible integrated circuit according to claim 71 wherein the substrate is a plastic substrate (plastic, col 8 line 1).

Re claim 73: Reddy discloses the flexible integrated circuit according to claim 71 wherein each of the thin film transistors includes a semiconductor film comprising silicon.

Re claim 74: Reddy discloses the flexible integrated circuit according to claims 71 further comprising an wiring (62/52 and 64/54) electrically connected to the integrated circuit (col 16 lines 9-28) wherein the wiring and the antenna are formed on a same surface

Re claim 100: Reddy discloses the flexible integrated circuit according to claims 71, wherein the antenna (68/70) is formed in a depressed portion formed in the interlayer insulating film (44/60).

As far as the claims can be understood, **Claim 93 is rejected under 35 U.S.C. 103(a)** as being unpatentable over U.S. Pat. No. 6,509,217 to Reddy in view of U.S.

Pub. No. 2002/0027247 to Arao et al (Arao) and U.S. Pub. No. 2003/0032210 to Takayama.

Re claim 93: Reddy as modified discloses the flexible integrated circuit according to claim 71. Reddy fails to disclose wherein the interlayer insulating film comprises an organic material. Takayama teaches an interlayer insulating film comprising an organic material (paragraph [0228]). It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Reddy to include the organic material as taught by Takayama in order to provide device insulation between wiring connections.

Response to Arguments

Applicant's arguments filed 01/05/2010 have been fully considered but they are not persuasive.

Applicant argues (Remarks page 12-13) that the specification discloses the first label 40 of Figure 4A-4C can be considered as the claimed "substrate." In response the Examiner has updated the 112 2nd paragraph rejection to reflect the problem with both the substrate and the label being claimed.

Applicant argues (Remarks page 13-14) that Reddy does not teach the antenna formed in the same layer as the wiring. In response the Examiner notes that "in the same layer as the wiring" is not limited to being constructed as the antenna formed along side of the wiring as shown, for example in Applicant's Figure 4A. Rather, the phrase "layer"

can be considered a grouping of elements, and accordingly Reddy does satisfy the amended claim limitations of the antenna formed in the same layer as the wiring.

Additionally it is noted that connecting to the impurity region does not limit the claim language to direct connection. For example, wiring layer 58, can be considered as connected to impurity region S or D because all elements of the transistor are connected to each other.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colleen A. Matthews whose telephone number is

(571)272-1667. The examiner can normally be reached on Monday - Friday 8AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lynne Gurley can be reached on 571-272-1670. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/C. A. M./
Examiner, Art Unit 2811

/Lynne A. Gurley/
Supervisory Patent Examiner, Art
Unit 2811